UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,293	04/27/2004	Robert J. Allen	BUR920030136US1	3292

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FREDERICK W. GIBB, III
GIBB INTELLECTUAL PROPERTY LAW FIRM, LLC
2568-A RIVA ROAD
SUITE 304
ANNAPOLIS, MD 21401

EXAMINER
PARIHAR, SUCHIN

ART UNIT	PAPER NUMBER
2825	

DATE MAILED: 05/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)	
Office Action Summary	10/709,293	ALLEN ET AL.	
	Examiner	Art Unit	
	Suchin Parihar	2825	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 April 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

　　4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,8,9,14-17 and 19* is/are rejected.

7)☒ Claim(s) *4,6,7,10-13,18 and 20* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 April 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

　　Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

　　Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

　　a)☐ All   b)☐ Some * c)☐ None of:

　　　1.☐ Certified copies of the priority documents have been received.

　　　2.☐ Certified copies of the priority documents have been received in Application No. _____.

　　　3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

　　* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/27/04; 7/22/04*.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____ .

DETAILED ACTION

This office action is in response to application 10/709,293, filed on 4/27/2004. Claims 1-20 are pending in this application.

Drawings

1.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "mapping of minimum/maximum values of said individual Voronoi diagrams" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2.   The Specification is objected to because: the reference to an application number

is missing on the first page of the specification, and needs to be inserted. Also, the

attorney docket number information should be removed from paragraph [0001].

Correction is required. See MPEP § 608.01(b).

Claim Objections

3.   Claim 13 is objected to because of the following informalities: The following

limitation lacks clarity and is in need of revision: "computing the sums and differences of

component critical areas of logical OR composites of subsets of said individual fault

mechanisms".   Examiner suggests the following amendment of the above limitation: --

computing the sums and differences of component critical areas of logical OR

composites, wherein the logical OR composites contain subsets of said individual fault

mechanisms--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly
> claiming the subject matter which the applicant regards as his invention.

5.   **Claim 14 is rejected under 35 U.S.C. 112, second paragraph**, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

6.   With respect to claim 14, the following limitation is indefinite in light of the

Applicant's specification: "computing the sums and differences of component critical

areas of logical OR composites of subsets of said individual fault mechanisms to obtain

an intermediate result". With respect to this claim limitation, it seems two results (sum

and difference value(s)) are produced which result in one single intermediate result. It

is unclear which intermediate result is being referenced in the last limitation of the claim.

Also, claim 14 fails to distinctly claim the subject matter found in paragraphs 12

and 13 of Applicant's specification.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public
>
> use or on sale in this country, more than one year prior to the date of application for patent in the United
>
> States.

8.   **Claims 1-3, 5, 8, 9, 15-17 and 19 are rejected under 35 U.S.C. 102(b)** as being

anticipated by Papadopoulou et al. (6,178,539).

9.   With respect to claims 1 and 15, Papadopoulou teaches a method, and a

program storage device embodying an executable program (i.e. a computer based

system including means for computing, Col 3, lines 37-43), which comprises:

constructing individual Voronoi diagrams for critical areas of individual fault mechanisms

(Voronoi diagrams generated as part of a system that calculates critical areas of shorts

[i.e. fault mechanisms], Col 22, lines 20-32); constructing a composite Voronoi diagram

based on said individual Voronoi diagrams (Voronoi diagram that provides a partitioning

of the plane into regions where critical area is easy to compute, Col 8, lines 40-45); and computing the critical area for composite fault mechanisms of said integrated circuit design based on said composite Voronoi diagram (computing the critical area of the 2nd order Voronoi diagram, Col 23, lines 40-45).

10.   With respect to claim 8, Papadopoulou teaches: constructing individual Voronoi diagrams for critical areas of individual fault mechanisms (Voronoi diagrams generated as part of a system that calculates critical areas of shorts [i.e. fault mechanisms], Col 22, lines 20-32); constructing logical OR composite Voronoi diagram of said individual Voronoi diagrams (i.e. performing a union of two regions of a Voronoi diagram, Col 8, lines 10-16); and computing the critical area for composite fault mechanisms of said integrated circuit design based on said composite Voronoi diagram (computing the critical area of the 2nd order Voronoi diagram, Col 23, lines 40-45).

11.   With respect to claims 2, 9 and 16, Papadopoulou teaches all the elements of claims 1, 8 and 15, from which the claims 2, 9 and 16 depend respectively. Papadopoulou teaches: wherein said constructing of said composite Voronoi diagram comprises a mapping of minimum values of said individual Voronoi diagrams (Voronoi diagrams computed using sweep-line algorithm, Col 3, lines 24-27; Note that applicant states, on page 19 of the specification, that the sweep-line algorithm is based on minimum distances, which examiner interprets as a mapping of minimum values in Papadopoulou).

12.   With respect to claims 3 and 17, Papadopoulou teaches all the elements of claims 1 and 15, from which the claims 3 and 17 depend respectively. Papadopoulou

teaches: wherein said constructing of said composite Voronoi diagram comprises a

mapping of maximum values of said individual Voronoi diagrams (i.e. critical maximum

radius of the vertices of the critical area in a Voronoi diagram).

13.   With respect to claims 5 and 19, Papadopoulou teaches all the elements of

claims 1 and 15, from which claims 5 and 19 depend respectively. Papadopoulou

teaches: wherein said constructing of said composite Voronoi diagram comprises

forming a logical OR composite of said individual fault mechanisms (i.e. a sweep line

algorithm is used, Col 3, lines 24-26; Note that Applicant states that a sweep line

algorithm is used to construct a composite OR Voronoi diagram).

Allowable Subject Matter

14.   Claims 4, 6, 7, 10-13, 18 and 20 are objected to as being dependent upon a

rejected base claim, but would be allowable if rewritten in independent form including all

of the limitations of the base claim and any intervening claims.

15.   The following is a statement of reasons for the indication of allowable subject

matter:

With respect to claims 4, 10 and 18, the prior art made of record fails to teach:

constructing a three dimensional representation of critical area for composite fault

mechanism.

With respect to claims 6 and 20, the prior art made of record fails to teach:

constructing composite Voronoi diagram comprises forming a logical AND composite of

said individual fault mechanisms.

With respect to claim 7, the prior art made of record fails to teach: constructing

said composite Voronoi diagram comprises forming a logical NOT of said individual fault

mechanisms.

With respect to claim 11, the prior art made of record fails to teach: a process

comprising subtracting the critical area of said individual fault mechanisms from the

area of said integrated circuit.

With respect to claim 12, the prior art made of record fails to teach: subtracting

the critical area of said logical OR composite of said first individual fault mechanism and

said second individual fault mechanism from said intermediate result.

With respect to claim 13, the prior art made of record fails to teach: computing

the sums and differences of component critical areas of logical OR composites of

subsets of said individual fault mechanisms.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Suchin Parihar whose telephone number is 571-272-

6210. The examiner can normally be reached on Mon-Fri, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Jack Chiang can be reached on 571-272-7483. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status
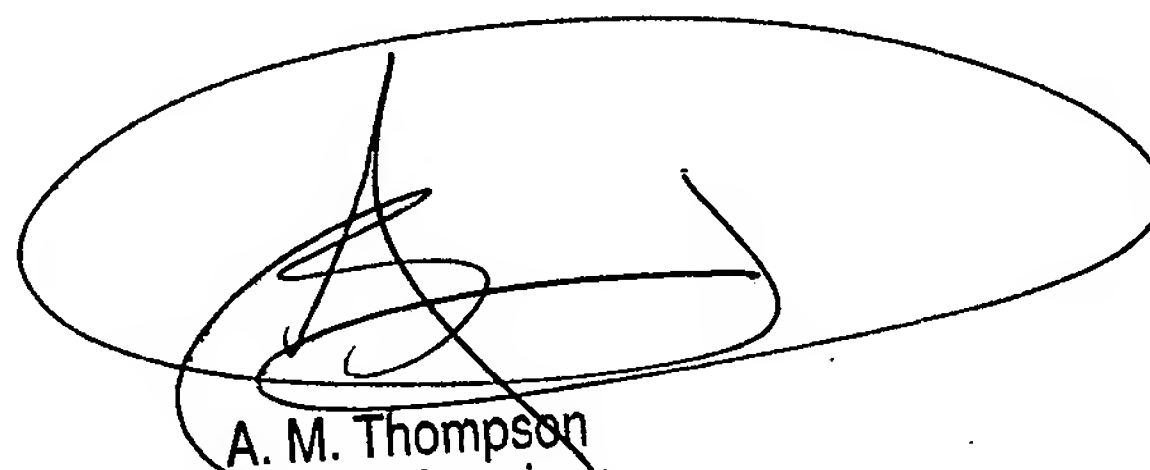
information for unpublished applications is available through Private PAIR only. For

more information about the PAIR system, see http://pair-direct.uspto.gov. Should you

have questions on access to the Private PAIR system, contact the Electronic Business

Center (EBC) at 866-217-9197 (toll-free).

Suchin Parihar
Examiner
AU 2825

A. M. Thompson
Primary Examiner
Technology Center 2800